PIXMA iP8500

SERVICE MANUAL

Canon

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PIXUS iP8600

PIXMA iP8500

SERVICE MANUAL

Revision 0

QY8-13A5-000

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Scope

This manual has been issued by Canon Inc., to provide the service technicians of this product with the information necessary for qualified persons to learn technical theory, installation, maintenance, and repair of products. The manual covers information applicable in all regions where the product is sold. For this reason, it may contain information that is not applicable to your region.

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I. MANUAL OUTLINE

This manual consists of the following three parts to provide information necessary to service the PIXMA iP8500:

Part 1: Maintenance
Information on maintenance and troubleshooting of the PIXMA iP8500

Part 2: Technical Reference
New technology and technical information such as FAQs (Frequently Asked Questions) of the PIXMA iP8500

Part 3: Appendix
Block diagrams and pin layouts of the PIXMA iP8500

Reference:
This manual does not provide sufficient information for disassembly and reassembly procedures. Refer to the graphics in the separate Parts Catalog.

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PIXMA iP8500 Specifications

Part 1

MAINTENANCE

1. MAINTENANCE

1-1. Adjustment, Periodic Maintenance, Periodic Replacement Parts, and Replacement Consumables by Service Engineer

(1) Adjustment

Adjustment	Timing	Purpose	Tool	Approx. time
EEPROM initialization (EEPROM settings)	At logic board ass'y replacement	To initialize settings other than the following: - USB serial number - Destination setting - Waste ink counter - CD-R correction value	None.	1 min.
Destination settings (EEPROM settings)	At logic board ass'y replacement	To set the destination.	None.	1 min.
Waste ink counter resetting (EEPROM settings)	- At bottom case unit replacement - At ink absorber (QC1-5381 / 5382 / 5383 / 5384 / 5385 / 5386 / 5387 / 5388 / 5389 / 5390) replacement	To reset the waste ink counter.	None.	1 min.
CD-R sensor / automatic print head alignment sensor correction (EEPROM settings)	- At logic board ass'y replacement - At carriage unit replacement	To correct the CD-R and automatic print head alignment sensor.	None. (Correction performed through service test print)	2 min.
Print head alignment	- At print head replacement - At logic board ass'y replacement - At carriage unit replacement	To ensure accurate dot placement.	- None. (printer buttons) - Computer (settings via the printer driver)	2 min.
Paper feed motor position adjustment *1	At paper feed motor unit replacement	To adjust the belt tension. (Position the paper feed motor so that the belt is stretched tight.)	None.	2 min.
Grease application	- At carriage unit replacement - At chassis' upper gear replacement - At shaft lift (QC1-4331) replacement	- To maintain sliding properties of the carriage, carriage shaft, and shaft lift. - To protect the chassis' upper gear.	- FLOIL KG-107A (QY9-0057) - MOLYKOTE HP300 (QY9-0035) - EU-1 (QY9-0037)	1 min.

Note: DO NOT loosen the red screws on both sides of the main chassis, securing the carriage shaft positioning.

*1: Red screws of paper feed motor

The red screws securing the paper feed motor may be loosened only at replacement of the paper feed motor unit.

(2) Periodic maintenance

No periodic maintenance is necessary.

(3) Periodic replacement parts

There are no parts in this printer that require periodic replacement by a service engineer.

(4) Replacement consumables

There are no consumables that require replacement by a service engineer.

1-2. Customer Maintenance

Adjustment	Timing	Purpose	Tool	Approx. time
Print head alignment	At print head replacement.	To ensure accurate dot placement.	- Printer buttons - Computer (automatic settings via the printer driver)	3 min.
Print head cleaning	When print quality is not satisfying.	To improve nozzle conditions.	- Printer buttons - Computer (settings via the printer driver)	1 min.
Print head deep cleaning	When print quality is not satisfying, and not improved by print head cleaning.	To improve nozzle conditions.	Computer (settings via the printer driver)	2 min.
Ink tank replacement	When an ink tank becomes empty. (No ink error)	-----	-----	2 min.
Paper feed roller cleaning	When paper does not feed properly.	To clean the paper feed rollers.	Printer buttons	2 min.
CD-R print position adjustment	At CD-R printing, when necessary	To correct CD-R print position.	Computer (application software)	5 min.
Bottom plate cleaning	When the back side of the paper is smeared	To clean the platen ribs.	Computer (application software)	1 min.

1-3. Product Life

(1) Printer

Specified print volume (I) or the years of use (II), whichever comes first.

(I) Print volume

		PIXMA iP8500
		10,000 pages
Black	1,500 character pattern	3,000 pages
Color	A4, 7.5% duty per color pattern	2,000 pages
	A4, photo, borderless printing	500 pages
	4 x 6, photo, borderless printing	3,000 pages
	Postcard, photo, borderless printing	1,500 pages

(II) Years of use

PIXMA iP8500: 5 years of use

(2) Print head

Print volume:

		PIXMA iP8500
		10,000 pages
Black	1,500 character pattern	3,000 pages
Color	A4, 7.5% duty per color pattern	2,000 pages
	A4, photo, borderless printing	500 pages
	4 x 6, photo, borderless printing	3,000 pages
	Postcard, photo, borderless printing	1,500 pages

(3) Ink tank (target value)

PIXMA iP8500:

BCI-6BK: 740 pages (1,500 character pattern, plain paper / standard mode)
BCI-6C: 1,100 pages (ISO JIS-SCID No. 5 / plain paper / standard mode)
BCI-6M: 790 pages (ISO JIS-SCID No. 5 / plain paper / standard mode)
BCI-6Y: 540 pages (ISO JIS-SCID No. 5 / plain paper / standard mode)
BCI-6PC: 380 pages (ISO JIS-SCID No. 5 / plain paper / standard mode)
BCI-6PM: 280 pages (ISO JIS-SCID No. 5 / plain paper / standard mode)
BCI-6R: 2,300 pages (ISO JIS-SCID No. 5 / plain paper / standard mode)
BCI-6G: 2,300 pages (ISO JIS-SCID No. 5 / plain paper / standard mode)

1-4. Special Tools

Name	Tool No.	Application	Remarks
MOLYKOTE HP300	QY9-0035-000	To be applied to the spring, oil, carriage cam, and the sliding portion of the gear.	In common with other models.
FLOIL KG-107A	QY9-0057-000	To be applied to the chassis, spring, and carriage cam.	In common with other models.
EU-1	QY9-0037	To be applied to the carriage shaft sliding portion, and the inner surface of the carriage unit where the oil pad fits in.	In common with other models.

1-5. Serial Number Location

On the chassis visible when the access cover is open with the power turned off.

2. LIST OF ERROR DISPLAY / INDICATION

Errors are indicated by the LED, and warnings are displayed on the monitor of the computer connected to the printer.

2-1. Operator Call Errors (by LED Blinking in Orange)

LED blinking in orange	Error [Error code]	Solution	Remarks
2 times	No paper. (ASF) [1000]	Set the paper in the ASF, and press the Resume/Cancel button.	
	No CD-R tray. [1001]	Set the CD-R tray, and press the Resume/Cancel button.	
	No paper in the cassette. [1003] (No paper in the front paper feed cassette.)	Set the paper in the cassette, and press the Resume/Cancel button.	
3 times	Paper jam. [1300]	Remove the jammed paper, and press the Resume/Cancel button.	
	Paper jam in the under guide. [1304]		
	Paper jam in the rear guide. [1303]		
	Front door closed. [1250]	Open the paper output tray.	
4 times	No ink. [1601 / 1611 / 1612 / 1613 / 1614 / 1615 / 1634 / 1635]	Replace the empty ink tank(s), or press the Resume/Cancel button.	Pressing the Resume/Cancel button will exit the error without ink tank replacement, however, ink may run out during printing.
5 times	- The print head is not installed. [1401] - The print head is not properly installed (EEPROM data of the print head is faulty). [1403 / 1405] - Non-supported print head is installed. [1485]	Install the print head properly, and close the access cover. Or, with the print head installed, turn the printer off and on.	
6 times	Inner cover open. [1841]*1	Close the inner cover, and press the Resume/Cancel button.	
	Inner cover open (during printing on paper). [1846]*1	Close the inner cover, and press the Resume/Cancel button.	
	CD-R tray feeder closed (during CD-R printing). [1850 / 1855]	Open the CD-R tray feeder, set the CD-R tray properly, and press the Resume/Cancel button.	
	CD-R tray feeder open (during printing to paper). [1851 / 1856]	Close the CD-R tray feeder, and press the Resume/Cancel button.	
7 times	No CD-R or DVD-R. [1002]	After setting a CD-R or DVD-R in the tray, set the tray in the tray guide, and press the Resume/Cancel button.	
8 times	Warning: The waste ink absorber is almost full (approx. 95% of the maximum capacity). [1700]	Pressing the Resume/Cancel button will exit the error, and enable printing. In repair servicing, replace the bottom case unit (QM2-1583), or the ink absorbers (QC1-5381 / 5382 / 5383 / 5384 / 5385 / 5386 / 5387 / 5388 / 5389 / 5390).	The service call error, indicating the waste ink absorber is full, is likely to occur soon.
9 times	The connected digital camera or digital video camera does not support Camera Direct Printing. [2001]	After removing the cable between the camera and the printer, press the Resume/Cancel button, and re-connect the cable.	
10 times	Automatic duplex printing cannot be performed (paper size not supported). [1310]	Press the Resume/Cancel button to eject the paper being used at error occurrence. Printing will resume from on the front side of the next page.	Data which was to be printed on the back side of paper at error occurrence is skipped (not printed).
11 times	Failed in automatic printhead alignment. [2500]	Press the Resume/Cancel button, and after confirming the following, perform printhead alignment again: - Set an appropriate type and size of paper (plain paper, A4 or letter). - Check that the nozzle check pattern is properly printed (all ink ejected, no faint printing). - Protect the paper output slot from exposure to excessive light.	
	Access cover open. [1200]	Close the access cover.	

*1: Only for models not supporting CD-R printing

2-2. Service Call Errors (by LED Blinking in Or ange and Green Alternately, or Lit in Orange)

LED alternate blinking in orange and green	Error [Error code]	Solution (Replacement of listed parts, which are likely to be faulty)
2 times	Carriage error [5100]	- Carriage unit (QM2-1586) - Timing slit strip film (QC1-5373) - Logic board ass'y (QM2-1616) *1 - Carriage motor (QK1-0545)
3 times	Paper feed error [6000]	- Timing sensor unit (QM2-1587) - Timing slit diskfilm (QC1-4375) - Feed roller ass'y (QL2-0742) - Platen unit (QM2-1831) - Logic board ass'y (QM2-1616) *1 - PAPER FEED MOTOR (QK1-0550)
4 times	Purge unit error [5C00]	- Purge unit (QM2-1590) - Logic board ass'y (QM2-1616) *1
5 times	ASF (cam) sensor error [5700]	- Sheet feed unit (QM2-1220)
6 times	Internal temperature error [5400]	- Logic board ass'y (QM2-1616) *1
7 times	Waste ink absorber full [5B00]	- Ink absorber (QC1-5381 / 5382 / 5383 / 5384 / 5385 / 5386 / 5387 / 5388 / 5389 / 5390) - Bottom case unit (QM2-1583) *2
8 times	Print head temperature rise error [5200]	- Print head (QY6-0055) - Logic board ass'y (QM2-1616) *1
9 times	EEPROM error [6800]	- Logic board ass'y (QM2-1616) *1
11 times	Carriage lift mechanism error [5110]	- Lift shaft(QC1-4331) - Photo interrupter (WG8-5624) - Sheet feed unit (QM2-1220) - Logic board ass'y (QM2-1616) *1
12 times	AP position error [6A00]	- Sheet feed unit (QM2-1220) - Logic board ass'y (QM2-1616) *1
13 times	Paper feed position error [6B00]	- Sheet feed unit (QM2-1220) - Logic board ass'y (QM2-1616) *1
14 times	Paper feed cam sensor error [6B10]	- Sheet feed unit (QM2-1220) - Logic board ass'y (QM2-1616) *1
15 times	USB Host VBUS overcurrent [9000]	- Logic board ass'y (QM2-1616) *1
16 times	Valve sensor error [6C00]	- Purge unit (QM2-1590) - Logic board ass'y (QM2-1616) *1
17 times	Motor driver error [6D00]	- Logic board ass'y (QM2-1616) *1
20 times	Other hardware error [6500]	- Logic board ass'y (QM2-1616) *1
Continuous alternate blinking	ROM error	- Logic board ass'y (QM2-1616) *1
Lights in orange	RAM error	- Logic board ass'y (QM2-1616) *1

*1: Before replacement of the logic board ass'y, check the waste ink amount (by service test print or EEPROM information print). If the waste ink amount is 7% or more, also replace the bottom case unit (QM2-1583) or the ink absorbers (QC1-5381 / 5382 / 5383 / 5384 / 5385 / 5386 / 5387 / 5388 / 5389 / 5390) when replacing the logic board ass'y.
[See Section 3. Adjustment / Settings, (5) Service mode, for details.]

*2: Reset the waste ink counter when replacing the bottom case unit.
[See Section 3. Adjustment / Settings, (5) Service mode, for details.]

2-3. Warnings

Printer (no LED indications):

Displayed warning	Remarks
Low ink of BCI-6BK / C / M / Y / PC / PM / R / G (at detection of no remaining raw ink)	Status indication only.
Print head temperature rise	If the print head temperature is high when the access cover is opened, the warning is displayed *1 When the print head temperature falls, the warning is released.
Protection of excess rise of the print head temperature	If the print head temperature exceeds the specified limit, a Wait is inserted during printing,

*1: If the warning is displayed, the carriage does not move to the ink tank replacement position when the access cover is opened.

2-4. Troubleshooting by Symptom

	Symptom	Solution	Remarks
Faulty operation	The power does not turn on. The power turns off immediately after power-on.	Replace the - AC adapter, or - logic board ass'y. *1	
	A strange noise occurs.	Remove foreign material, or attach a removed part if any.	
	Printing stops mid-way.	Replace the logic board ass'y. *1	
Paper feed problems	Multiple sheets feed.	Replace the - sheet feed unit, - cassette.	
	Paper does not feed.	Remove foreign material, or replace the - sheet feed unit, or - cassette.	
	Paper feeds at an angle.	Remove foreign material, or replace the - sheet feed unit, or - cassette.	
Unsatisfactory print quality	No printing, or no color ejected.	Replace the - ink tank, - print head *2, - logic board ass'y, *1 or - purge unit.	
	Printing is faint, or white lines appear on printouts even after print head cleaning. Line(s) not included in the print data appears on printouts.	Remove and re-install the print head, or replace the - ink tank, - print head *2, - purge unit, or - logic board ass'y. *1	
	Paper gets smeared.	Feed several sheets of paper, perform bottom plate cleaning, or clean the paper path with cotton swab or cloth.	
	A part of a line is missing on printouts.	Replace the - ink tank, or - print head *2.	
	Color hue is incorrect.	Replace the - ink tank, or - print head *2, or perform print head alignment.	
	Printing is incorrect.	Replace the logic board ass'y. *1	
	No ejection of black ink.	Replace the - ink tank, or - print head *2.	
	Graphic or text is enlarged on printouts.	When enlarged in the carriage movement direction, clean grease or oil off the timing slit strip film, or replace the - timing slit strip film, - carriage unit, or - logic board ass'y. *1 When enlarged in the paper feed direction, clean grease or oil off the timing slit disk film, or replace the - timing slit disk film, - timing sensor unit, or - logic board ass'y. *1	

*1: Before replacement of the logic board ass'y, check the waste ink amount (by service test print or EEPROM information print). If the waste ink amount is 7% or more, also replace the bottom case unit (QC1-1583) or the ink absorbers (QC1-5381 / 5382 / 5383 / 5384 / 5385 / 5386 / 5387 / 5388 / 5389 / 5390) when replacing the logic board ass'y.
[See Section 3. Adjustment / Settings, (5) Service mode, for details.]

*2: Replace the print head only after the print head deep cleaning is performed 2 times, and when the problem persists.

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3. REPAIR

3-1. Notes on Service Part Replacement (and Disassembling / Reassembling)

Service part	Notes on replacement *1	Adjustment / settings	Operation check
Logic board ass'y QM2-1616	- Before removal of the logic board ass'y, remove the power cord, and allow for approx. 1 minute (for discharge of capacitor's accumulated charges), to prevent damages to the logic board ass'y. - Before replacement, check the waste ink amount (by service test print or EEPROM information print). If the waste ink amount is 7% or more, also replace the bottom case unit or the ink absorbers when replacing the logic board ass'y. See 3.3. Adjustment / Settings, (6) Service mode, for details. [See 3. Adjustment / Settings, (6) Service mode, for details.]	After replacement: 1. Initialize the EEPROM. 2. Reset the waste ink counter. 3. Set the destination in the EEPROM. 4. Correct the CD-R and automatic print head alignment sensors. [See 3. Adjustment / Settings, (6) Service mode, for details of 1 to 4] 5. Perform the print head alignment in the user mode.	- EEPROM information print - Service test print - Printing via parallel or USB connection - Direct printing from a digital camera
Bottom case unit QM2-1583 Ink absorber QC1-5381 / 5382 / 5383 / 5384 / 5385 / 5386 / 5387 / 5388 / 5389 / 5390		After replacement: 1. Reset the waste ink counter. [See 3.3. Adjustment / Settings, (6) Service mode.]	- Service test print
Carriage unit QM2-1586		At replacement: 1. Apply grease to the sliding portions. [See 3. Adjustment / Settings, (3) Grease application.] After replacement: 1. Correct the CD-R and automatic print head alignment sensors. [See 3.3. Adjustment / Settings, (6) Service mode.] 2. Perform the print head alignment in the user mode.	- Service test print (Confirm CD-R and automatic print head alignment sensor correction.)
Paper feed motor unit QK1-0550	- The red screws securing the paper feed motor are allowed to be loosened. (DO NOT loosen any other red screws.)	At replacement: 1. Adjust the paper feed motor. [See 3. Adjustment / Settings, (1) Paper feed motor adjustment.]	
Shaft lift QC1-4331		At replacement: 1. Apply grease to the sliding portions. [See 3.3. Adjustment / Settings, (3) Grease application.]	- Service test print
Timing slit strip film QC1-5373 Timing slit disk film QC1-4372	- Upon contact with the film, wipe the film with ethanol. - Confirm no grease is on the film. (Wipe off any grease thoroughly with ethanol.) - Do not bend the film	After replacement: 1. Perform the print head alignment in the user mode.	- Service test print
Print head QY6-0055		After replacement: 1. Perform the print head alignment in the user mode.	- Service test print

*1: General notes:

- Make sure that the flexible cables and wires in the harness are in the proper position and connected correctly.

[See 2. Special Notes on Repair Servicing, (1) Flexible cable and harness wiring, connection, for details.]

- Do not drop the ferrite core, which may cause damage.

- Protect electrical parts from damage due to static electricity.

- Before removing a unit, after removing the power cord, allow the printer to sit for approx. 1 minute (for capacitor discharge) to protect the logic board ass'y from damages).

- Do not touch the timing slit strip film and timing slit disk film. No grease or abrasion is allowed.

- Protect the units from soiled with ink.

- Protect the housing from scratches.

- Exercise caution with the red screws, as follows:

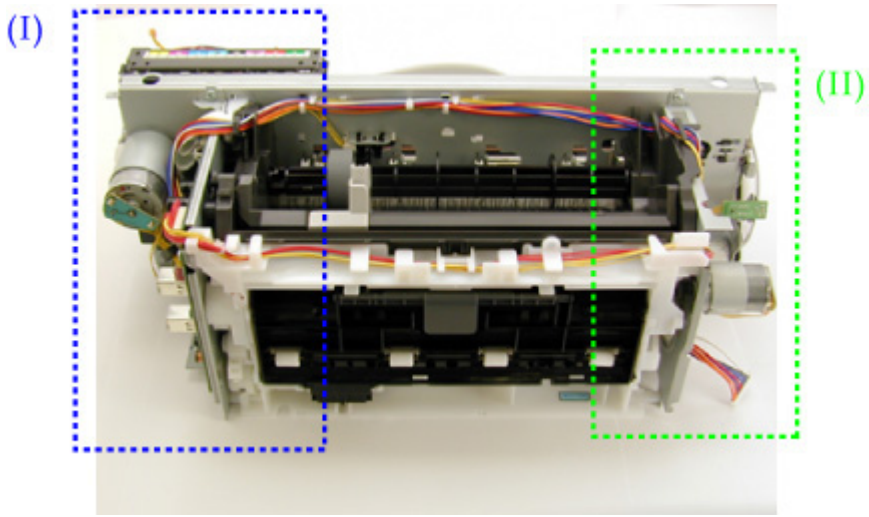
  i. The red screws of the paper feed motor may be loosened at replacement of the paper feed motor unit (DO NOT loosen them in other cases).

  ii. DO NOT loosen the red screws on both sides of the main chassis, securing the carriage shaft positioning (they are not adjustable in servicing).

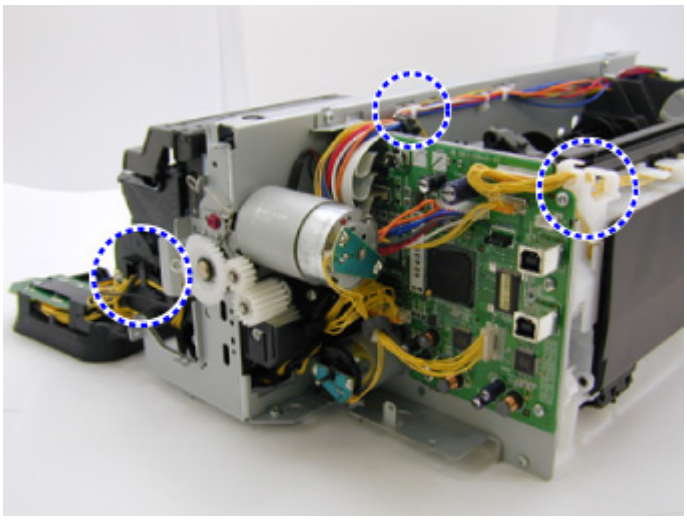
3-2. Special Notes on Repair Servicing

(1) Flexible cable and harness wiring, connection

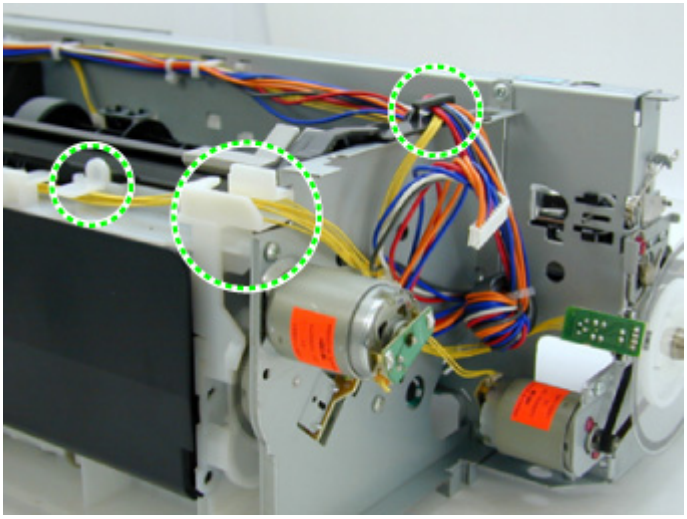
Be careful of wiring of the flexible cables and harness. Improper wiring or connection may cause breakage of a line, leading to ignition or emission of smoke.



(I) Logic board ass'y and operation panel unit wiring



(II) Paper feed motor side wiring



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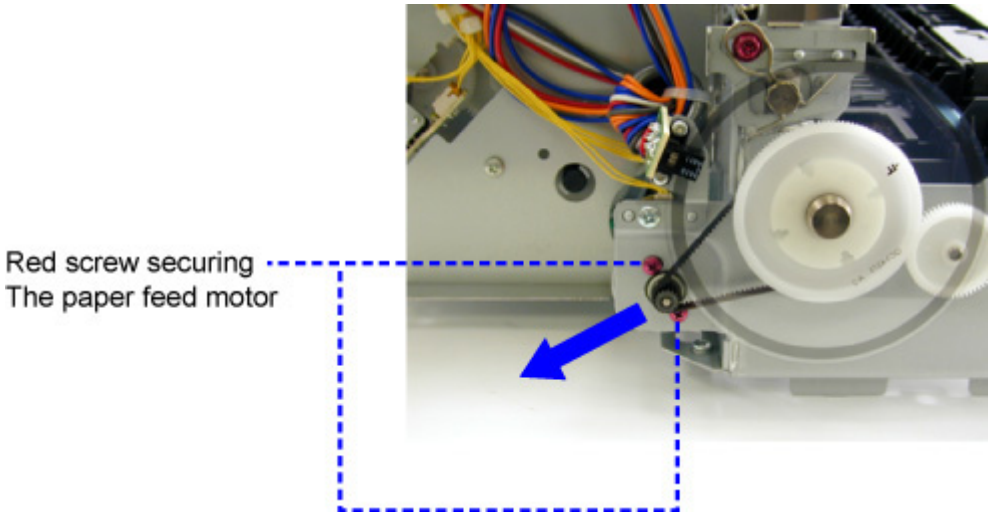
3-3. Adjustment / Settings

(1) Paper feed motor adjustment

Perform the following adjustments when the paper feed motor unit is replaced:

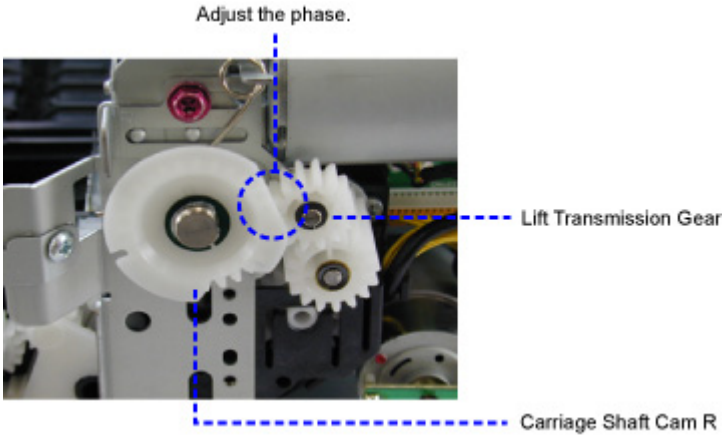
1) When attaching the motor, fasten the screws so that the belt is properly stretched (in the direction indicated by the blue arrow in the figure below).
2) After replacement, be sure to perform the service test print, and confirm that no strange noise or faulty print operation (due to dislocation of the belt or gear, or out-of-phase motor, etc.) occurs.



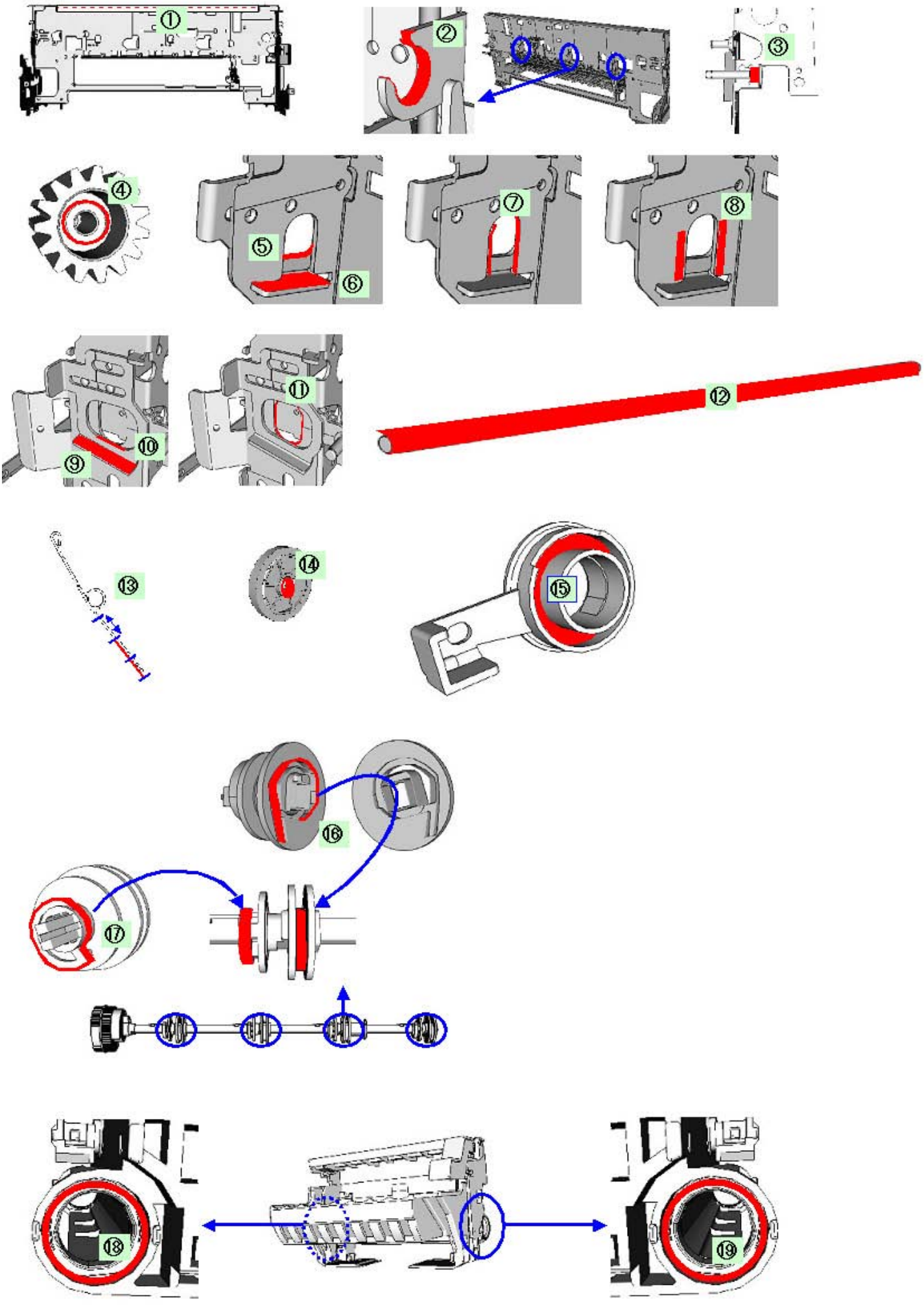
Note: The red screws securing the paper feed motor may be loosened only at replacement of the paper feed motor unit. DO NOT loosen them in other cases.

(2) Gear phase adjustment

In attaching the lift transmission gear (QC1-4327), adjust the phase so that the protrusion of the lift transmission gear (QC1-4327) fits into the recess of the carriage shaft cam R (QC1-4382), as shown in the figure below.



(3) Grease application



Part name	Where to apply grease / oil		Grease / oil name	Grease / oil amount
Chassis	1	Entire surface the carriage slider contacts	FLOIL KG107A	3 drops
	2	Cam contact portion (at 3 locations)	FLOIL KG107A	1 drop
	3	Coil spring inner surface contact portion	MOLYKOTE HP300	1 drop
Lift gear 2	4	Coil spring contact portion	MOLYKOTE HP300	1 drop
Chassis	5	Carriage shaft left end sliding portion	FLOIL KG107A	1 drop
	6	Carriage shaft cam L sliding portion	MOLYKOTE HP300	2 drops
	7	Carriage shaft sliding portion on the left side of the chassis (at 2 locations)	FLOIL KG107A	1 drop
	8	Carriage shaft cam L contact portion (at 2 locations)	FLOIL KG107A	2 drops
	9	Carriage shaft cam R sliding portion	MOLYKOTE HP300	1 drop
	10	Carriage shaft right end sliding portion	FLOIL KG107A	1 drop
	11	Carriage shaft right end contact portion	FLOIL KG107A	1 drop
Carriage shaft	12	Entire surface of the carriage shaft where the carriage unit slides	EU-1	80±30mg
Carriage shaft spring L	13	Carriage shaft sliding portion (over the area more than 2/3 from the top end of the spring)	FLOIL KG107A	1 drop
Transmission gear	14	Inner surface	MOLYKOTE HP300	1 drop
Feed roller ass'y	15	Bushing where the spring contacts	FLOIL KG107A	Half drop
Lift shaft	16	Spring sliding portion (4 locations)	FLOIL KG107A	1 drop
	17	Pressure roller ass'y contact portion (4 locations)	FLOIL KG107A	1 drop
Carriage unit	18	Entire inner surface where the oil pad fits in	EU-1	100 +/- 10mg
	19	Entire inner surface where the oil pad fits in	EU-1	100 +/- 10mg

Note: 1 drop = 9 to 18 mg

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<Part 1: 3. REPAIR, 3-3 (1) to (3)>

(4) Waste ink counter setting

When the logic board ass'y is replaced, reset the waste ink counter. In addition, according to the waste ink amount, replace the waste ink absorber (the bottom case unit or the ink absorbers). The standard amount for waste ink absorber replacement is given in the table below.

Waste ink amount*1	Bottom case unit or ink absorber replacement
Less than 7%	Not required.
7% or more	Required.

*1: Check the waste ink amount by service test print or EEPROM information print.
[See 3.3. Adjustment / Settings, (6) Service mode, for details.]

(5) User mode

Function	Procedures	Remarks
Print head manual cleaning	- Cleaning both black and color: See "Standalone printer operation" below. - Cleaning black or color separately, or both black and color: Perform from the printer driver's Maintenance tab.	
Print head deep cleaning	- Cleaning black or color separately, or both black and color: Perform from the printer driver's Maintenance tab.	
Paper feed roller cleaning	See "Standalone printer operation" below.	
Nozzle check pattern printing	See "Standalone printer operation" below.	Also available from the printer driver's Maintenance tab.
Print head alignment	See "Standalone printer operation" below.	In Custom Settings of the printer driver's Maintenance tab, manual print head alignment (by selecting the optimum values) as with the conventional models can be performed.
Bottom plate cleaning	Perform from the printer driver's Maintenance tab.	Cleaning of the platen ribs when the back side of paper gets smeared.
CD-R print position adjustment	Perform from the application software.	
Ink tank replacement	Open the access cover. When the carriage stops at the center, an ink tank can be replaced.	
Print head replacement	The print head is replaceable at the same position as for ink tank replacement. (Open the access cover. When the carriage stops at the center, the print head can be replaced.)	

<Standalone printer operation>

1) Turn on the printer.

2) Press and hold the Resume/Cancel button until the LED blinks the specified number of times listed in the table below, and release it. The operation starts.

LED blinking	Operation	Remarks
1 time	Print head manual cleaning	
2 times	Nozzle check pattern printing	Set a sheet of plain paper (A4 or letter) in the ASF or the cassette (according to the Paper Feed switch setting).
3 times	Paper feed roller cleaning	
4 times	Automatic print head alignment	Set a sheet of plain paper (A4 or letter) in the ASF.
5 times	Bottom plate cleaning	Fold a sheet of plain paper (A4 or letter) in half crosswise, then unfold and set it in the ASF with the folded ridge facing down.
6 times	Unspecified	
7 times	Set the widest head-to-paper distance	

(6) Service mode

Function	Procedures	Remarks
Service test print - Model name - ROM version - Waste ink amount - CD-R sensor correction	See "Service mode operation procedures" below.	Set a sheet of A4- , letter-, or larger-sized paper. For print sample, see 3-4. Verification Items, (1) Service test print, <Service test print sample>.
EEPROM initialization	See "Service mode operation procedures" below.	The following items are NOT initialized: - USB serial number - Destination settings - Waste ink counter - CD-R correction value
Waste ink counter reset	See "Service mode operation procedures" below.	If the waste ink amount is 7% or more, replace the bottom case unit, or the ink absorbers.
Destination settings	See "Service mode operation procedures" below.	Other than Japan: iP8500 Japan: iP8600

Note: At the end of the service mode, press the Power button. To protect the media sensor from being dislocated during transportation, the paper lifting plate of the sheet feeder unit will be raised.

<Service mode operation procedures>

1) With the printer power turned off, while pressing the Resume/Cancel button, press and hold the Power button. (DO NOT release the buttons. The LED lights in green to indicate that a function is selectable.)
2) While holding the Power button, release the Resume/Cancel button. (DO NOT release the Power button.)
3) While holding the Power button, press the Resume/Cancel button 2 times, and then release both the Power and Resume/Cancel buttons. (Each time the Resume/Cancel button is pressed, the LED lights alternately in orange and green, starting with orange.)
4) When the LED lights in green, press the Resume/Cancel button the specified number of time(s) according to the function listed in the table below. (Each time the Resume/Cancel button is pressed, the LED lights alternately in orange and green, starting with orange.)

Time(s)	LED	Function	Remarks
0 times	Green	Power off	When the print head is not installed, the carriage returns and locks in the home position.
1 time	Orange	Service test print	See 3-4. Verification Items, (1) Service test print.
2 times	Green	EEPROM information print	See 3-4. Verification Items, (2) EEPROM information print.
3 times	Orange	EEPROM initialization	
4 times	Green	Waste ink counter resetting	
5 times	Orange	Destination settings	Proceed to the step 5), and follow the Destination settings procedures.
6 times	Green	Print head deep cleaning	
7 times	Green	CD-R test print	Not used in servicing.
8 times	Orange	CD-R print position correction (horizontal)	Not used in servicing.
9 times	Green	CD-R print position correction (vertical)	Not used in servicing.
10 times or more		Return to the menu selection	

5) After the function (menu) is selected, press the Power button. The LED lights in green, and the selected function is performed. (When the operation completes, the printer returns to the menu selection mode automatically.)

<Destination settings procedures>

In the destination settings mode, press the Resume/Cancel button the specified number of time(s) according to the destination listed in the table below, and press the Power button.

Time(s)	LED	Destination
1 time	Orange	Japan: iP8600
2 times	Green	Other than Japan, non-support of CD-R printing (A4): iP8500
3 times	Orange	Other than Japan, non-support of CD-R printing (LTR): iP8500 (LTR)
4 times	Green	Other than Japan, support of CD-R printing (A4): iP8500
5 times	Orange	Other than Japan, support of CD-R printing (LTR): iP8500 (LTR)
6 times or more		Return to the menu selection

Note: After setting the destination, confirm the model name in service test print or EEPROM information print.
[See 3.4. Verification Items, (1) Service test print, or (2) EEPROM information print.]

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3-4. Verification Items

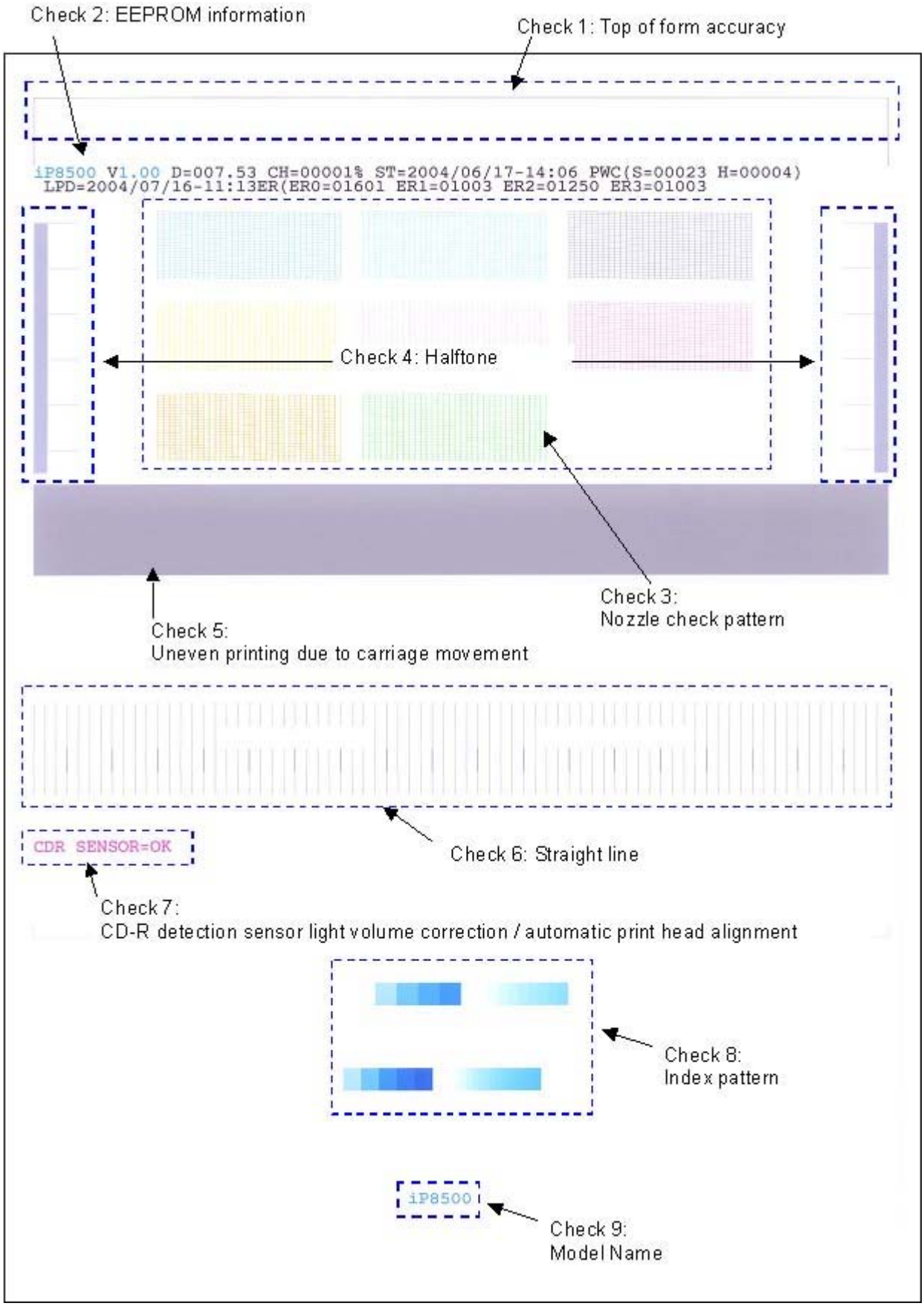
(1) Service test print

<Print check items>

On the service test print (sample below), confirm the following items:

- Check 1, top of form accuracy: The line shall not extend off the paper.
- Check 2, EEPROM information
- Check 3, nozzle check pattern: Ink shall be ejected from all nozzles
- Check 4, halftone: There shall be no remarkable streaks or unevenness.
- Check 5, uneven printing due to carriage movement: There shall be no remarkable streaks or unevenness.
- Check 6, vertical straight lines: The line shall not be broken.
- Check 7, CD-R detection sensor light volume correction / automatic print head alignment: The results shall be OK.
- Check 8, index pattern: The patterns shall be printed in multiple levels (stepped).
- Check 9, model name: iP8500 for non-Japan model, iP8600 for Japan model.

<Service test print sample>



(2) EEPROM information print

<How to read EEPROM information print>

Print sample:

iPXXXX V1.00 IF(USB1=1 USB2=0) D=004.5 ST=2004/06/27-18:30
ER(ER0=1000 ER1=5100 ER2=1300 ER3=5B00) LPT=2004/07/09-09:09
PC(M=002 R=000 T=001 D=009 C=000) CLT0=2004/06/27-18:30 CLT1=2004/06/27-18:30
CH=00002 CT(G=001 R=001 PM=002 BK=002 PC=005 C=000 M=01 Y=01)
IS(G=1 R=1 PM=0 BK=1 PC=1 C=1 M=1 Y=1)

IC(G=028 R=028 PM=028 BK=201 PC=028 C=182 M=169 Y=249)
P_ON(S=00009 H=005 A=000) A_REG=1 M_REG=0
UR(A(Goe)=+01 B(Roe)=-01 C(PMoe)=+01 D(Bkoe)=-01 E(PCoe)=+01 F(Coe)=+01 G(Moe)=+01
H(Bkbi)=+01 I(Cbi)=+01 J(Mbi)=+01 K(BkCLbi)=+01)

WP=0024 CDIN(LG=001 PB=000) MSD(49710)
TPAGE=1500
PAGE(All=00083 PP=00035 HR+MP=00003 PR+SP+SG =00000 GP =00000 PC=00000 ENV=00000
L=5 2L=0)
UCPAGE(All=00083 PP=00035 HR+MP=00003 PR+SP+SG =00000 GP =00000 PC=00000 ENV=00000
L=5 2L=0)
BPPAGE(All=00083 BSSP=00003 PC=00000)
CDPAGE(All=000 A4=000 L=000 2L=000 PC=000 OTR=000) EDGE(ALL=00083 PC=000 UPC=000
OTR=000 UOTR=000)
CDR=00000
CDRP=(-00005,-00029) CDRS=(000)
Head Temp =18.5 Head Temp 1=17.5 Env Temp=30.0 FF (3F 3F 3F)

HDEEPROM
V0001
SN=a9850000
LN(00000 00000 00015 00015 00015 00015 00015)
ID=01
IL=(G=00 R=00 PM=00 BK=00 PC=00 C2=00 M2=00 Y=00 M1=00 C1=00)

Printed items:

1. Model name 2. ROM version 3. Connected I/F (USB1/USB2) 4. Waste ink amount 5. Installation date

6. Operator call/service call error record 7. Last printing time

8. Purging count (manual/deep cleaning/timer/dot count/ink tank or print head replacement)

9. Cleaning time (CLT0/CLT1)

10. Print head replacement count 11. Ink tank replacement count (dye G/R/PM/BK/PC/C/M/Y) 12. Ink status (dye G/R/PM/BK/PC/C/M/Y)

13. Total ink consumption (G/R/PM/BK/PC/C/M/Y)

14. Power-on count (soft/hard/auto) 15. Automatic print head alignment by user 15-1. Manual print head alignment by user

16. User print head alignment values (Goe/Roe/PMoe/Bkoe/PCoe/Coe/Moe/Bkbi/Cbi/Mbi/BkCLbi)

17. Wiping count 18. Camera Direct Print-supported device connection record 19. Longest period where printing stops 20. Total print pages

21. ASF feed pages (total, plain paper, High Resolution Paper & Matte Photo Paper, Photo Paper Pro & Photo Paper Plus Glossy & Photo Paper Plus Semi-gloss, Glossy Photo Paper, postcard, envelope, L-size & 4x6, 2L-size & 5x7)

22. U-turn cassette feed pages (total, plain paper, High Resolution Paper & Matte Photo Paper, Photo Paper Pro & Photo Paper Plus Glossy & Photo Paper Plus Semi-gloss, Glossy Photo Paper, postcard, envelope, L-size & 4x6, 2L-size & 5x7)

23. Auto duplex print pages (total, Photo Paper Plus Double Sided, postcard)

24. Camera Direct print pages (total, A4 & LTR, L-size & 4x6, 2L-size & 5x7, postcard, other)

25. Borderless print pages (total, postcard via ASF, postcard via U-turn cassette, other via ASF, other via U-turn cassette)

26. Number of CD-Rs printed

27. CD-R print position adjustment 28. CD-R sensor correction value 29. Print head temperature (chip 0 for G/R/PM/BK/PC, chip 1 for C/M/Y)

30. Inside temperature 31. Line inspection information

HDEEPROM

32. Version

33. Serial number

34. Lot number

35. Print head ID

36. Ink ejection level (BK/PM/PC/M/C/Y/G/R)

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4. PRINTER TRANSPORTATION

This section describes the procedures for transporting the printer for returning after repair, etc.

1) In the service mode, press the Power button to finish the mode, and confirm that the paper lifting plate of the sheet feeder unit is raised.

2) Keep the print head and ink tanks installed in the carriage.
[See Caution 1 below.]

3) Turn off the printer to securely lock the carriage in the home position. (When the printer is turned off, the carriage is automatically locked in place.)
[See Caution 2 below.]

Caution:

(1) If the print head is removed from the printer and left alone by itself, ink (especially the pigment black ink) is likely to dry. For this reason, keep the print head installed in the printer even during transportation.

(2) Securely lock the carriage in the home position, to prevent the carriage from moving and applying stress to the carriage flexible cable, or causing ink leakage, during transportation.

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Part 2

TECHNICAL REFERENCE

1. NEW TECHNOLOGIES

(1) Larger color space by 8 colors of ink (6 colors + red + green)

By adding the red and green ink, a larger color space than the 6-color printer is available.

(2) Highest in class print speed

By increasing the print head drive frequency by 20% over conventional printers, further improvement in photo print speed has been achieved.

(3) Multi-paper path functionality (ASF, front cassette, CD-R printing*, automatic duplex printing) as a standard feature

- Cassette: Except Photo Stickers and credit card size, same types and sizes of paper as the sheet feeder, including photo papers, are supported.
- Sheet feeder: Photo Stickers and credit card size are supported.

* Support of CD-R printing differs according to region.

(4) New design

A new generation printer design by complete renovation of styling has been adopted.

(5) Automatic creation of a photo album

By using Photo Paper Plus Double Sided and dedicated application software, a photo album can be created automatically.

(6) CD-R direct printing without using the CD-R tray feeder (applicable only to specific regions)

By incorporating CD-R tray feeder functionality into the printer, CD-R direct printing can be performed without using a CD-R tray feeder.

(7) Automatic duplex printing unit installed as a standard feature

For the following paper types and sizes, automatic duplex printing can be performed:

- Type: Plain paper, Super White Paper, Photo Paper Plus Double Sided
- Size: A5, B5, 5" x 7", A4, LTR

(8) Automatic print head alignment

The simple print head alignment featured in the i990 is automatically performed. At connection to a computer, or at Camera Direct Printing, the print head can be adjusted automatically, freeing users from performing the simple print head alignment.

Manual print head alignment is available in the printer driver's Maintenance sheet's Custom Settings.

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2. CLEANING MODE AND AMOUNT OF INK PURGED

To prevent printing problems due to bubbles, dust, or ink clogging, print head cleaning is performed before the start of printing, except in the following cases:

- Cleaning on arrival: Performed when the access cover is closed.
- Cleaning by dot count: Performed after ejection of paper (or after printing on the back side of paper when auto duplex printing is performed).

<Cleaning mode list>

Condition	Details	Amount of ink used (g)	Est. required time (sec.)
On arrival of the printer (All at the same time)	First cleaning after shipped from the plant.	2.17	84
Dot count cleaning	When the specified number of dots are printed since the previous cleaning. (Number of ejected ink droplets in each line of nozzles is counted, and addd to the number of dots.)	0.79 (G/R/PM/BK/PC) 0.59 (C/M/Y)	67
Timer cleaning - 0	If 120 to 480 hours have elapsed since the previous cleaning till the start of the next printing.	0.79 (G/R/PM/BK/PC) 0.59 (C/M/Y)	67
Timer cleaning - 1	If 480 or longer hours have elapsed since the previous cleaning till the start of the next printing.	1.87 (G/R/PM/BK/PC) 1.37 (C/M/Y)	83
At print head replacement -1 (All at the same time)	When the same print head (same print head serial number) is removed and installed.	1.87 (G/R/PM/BK/PC) 1.37 (C/M/Y)	83
At print head replacement -2 (All at the same time)	When the print head is removed, and a new print head is installed.	2.17 (G/R/PM/BK/PC) 1.56 (C/M/Y)	84
At ink tank replacement - 1 (All at the same time)	When more than 1 ink tanks are replaced without removing and installing the print head.	0.79 (G/R/PM/BK/PC) 0.59 (C/M/Y)	67
At ink tank replacement - 2 (Each color)	When replacement of an ink tank is detected*1 , and when ink tank replacement is performed without removing and installing the print head, cleaning for the detected color(s) is conducted.	0.94 (BK/PM) 0.94 (PC/R) 0.94 (G) 0.78 (C) 0.78 (M) 0.78 (Y)	67 68 69 67 68 69
Manual cleaning -1 (All at the same time)	- Via the operation panel (All at the same time only) - Via the printer driver	0.79 (G/R/PM/BK/PC) 0.59 (C/M/Y)	67
Manual cleaning -2 (Each color)	Via the printer driver	0.94 (G/R/PM/BK/PC) 0.78 (C/M/Y)	68 69
Deep cleaning (All at the same time/Each color)	Via the printer driver	1.87 (G/R/PM/BK/PC) 1.37 (C/M/Y)	83
If the print head has not been capped before power-on (All at the same time)		1.87 (G/R/PM/BK/PC) 1.37 (C/M/Y)	83

*1: After the print head moves to the ink tank replacement position at low ink detection,
- when the raw ink amount changes from low to high, the applicable ink tank is considered to have been replaced.
- when the raw ink amount changes from high to low, or the raw ink amount stays unchanged (high or low), it is considered that ink tanks are not replaced.

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<Part 2: 2. CLEANING MODE AND AMOUNT OF INK PURGED>

3. PRINT MODE

3-1. Resolution

default setting
can be selected on Main tab
custom setting

Ink: 8 color : BCI-6G/R/PM/PC/C/M/Y/BK
7 color : BCI-6R/PM/PC/C/M/Y/BK
6 color : BCI-6PM/PC/C/M/Y/BK
4 color : BCI-6C/M/Y/BK

(1)Normal Color Printin g

Paper Type \ Printer Driver's Custom setting		Fast 5	<-- 4	 3	--> 2	Fine 1
Plain Paper	Print quality Resolution HxV(dpi) Print control Ink used	Custom 600x1200 1 pass-bi 4 color	Draf 600x1200 1 pass-bi 4 color	Standard 2400x1200 2 pass-bi/uni 4 color		High 2400x2400 8 pass-bi 6 color
Photo Paper Pro (PR-101)	Print quality Resolution HxV(dpi) Print control Ink used			Standard 2400x1200 4 pass-bi 8 color		High 4800x2400 8 pass-bi 8 color
Photo Paper Plus Glossy Photo Paper Plus Semi-Gloss (PP-101/SG-101)	Print quality Resolution HxV(dpi) Print control Ink used		Draf 1200x1200 3 pass-bi 6 color			High 4800x2400 8 pass-bi 8 color
Matte Photo Paper (MP-101)	Print quality Resolution HxV(dpi) Print control Ink used			Standard 2400x1200 4 pass-uni 7 color		High 2400x2400 8 pass-bi 7 color
Glossy Photo Paper (GP-401)	Print quality Resolution HxV(dpi) Print control Ink used		Draf 2400x1200 4 pass-bi 6 color			High 4800x2400 8 pass-bi 8 color
Photo Paper Plus Double Side (PP-101D)	Print quality Resolution HxV(dpi) Print control Ink used		Draf 2400x1200 4 pass-bi 6 color			High 4800x2400 8 pass-bi 8 color
High Resolution Paper (HR-101N)	Print quality Resolution HxV(dpi) Print control Ink used			Standard 2400x1200 4 pass-uni 6 color		High 2400x2400 8 pass-bi 6 color
Transparency (CF-102)	Print quality Resolution HxV(dpi) Print control Ink used		Draf 2400x1200 4 pass-bi 4 color	Standard 2400x1200 8 pass-bi 4 color		
T-shirt transfer (TR-301)	Print quality Resolution HxV(dpi) Print control Ink used			Standard 2400x1200 8 pass-bi 4 color		
CD-R(recommended)	Print quality Resolution HxV(dpi) Print control Ink used		Draf 2400x1200 4 pass-bi 6 color	Standard 2400x1200 8 pass-bi 6 color		
CD-R(others)	Print quality Resolution HxV(dpi) Print control Ink used		Draf 2400x1200 4 pass-bi 6 color	Standard 2400x1200 8 pass-bi 6 color		
Envelope (COM#10/DL-size)	Print quality Resolution HxV(dpi) Print control Ink used		Draf 600x1200 1 pass-bi 4 color	Standard 2400x1200 2 pass-bi/uni 4 color		High 2400x2400 8 pass-bi 6 color
Other Photo Paper	Print quality Resolution HxV(dpi) Print control Ink used			Standard 2400x1200 8 pass-bi 6 color		

(2)Grayscale Printing

Paper Type \ Printer Driver's Custom setting		Fast 5	<-- 4	 3	 2	-->Fine 1
Plain Paper	Print quality Resolution HxV(dpi) Print control Ink used	Custom 600x1200 1 pass-bi 1 color	Draf 600x1200 1 pass-bi 1 color	Standard 2400x1200 2 pass-bi/uni 4 color		High 2400x2400 8 pass-bi 6 color
Photo Paper Pro (PR-101)	Print quality Resolution HxV(dpi) Print control Ink used			Standard 2400x1200 12 pass-uni 4 color		High 2400x1200 12 pass-uni 4 color
Photo Paper Plus Glossy Photo Paper Plus Semi-Gloss (PP-101/SG-101)	Print quality Resolution HxV(dpi) Print control Ink used		Draf 2400x1200 12 pass-uni 4 color			High 2400x1200 12 pass-uni 4 color
Matte Photo Paper (MP-101)	Print quality Resolution HxV(dpi) Print control Ink used			Standard 2400x1200 12 pass-uni 4 color		High 2400x1200 12 pass-uni 4 color
Other Photo Paper	Print quality Resolution HxV(dpi) Print control Ink used			Standard 2400x1200 12 pass-uni 4 color		

(3)Borderless Printing

Paper Type \ Printer Driver's Custom setting		Fast 5	<-- 4	 3	 2	-->Fine 1
Plain Paper	Print quality Resolution HxV(dpi) Print control Ink used			Standard 2400x1200 2 pass-bi/uni 4 color		
Photo Paper Pro (PR-101)	Print quality Resolution HxV(dpi) Print control Ink used			Standard 2400x1200 4 pass-bi 8 color		High 4800x2400 8 pass-bi 8 color
Photo Paper Plus Glossy Photo Paper Plus Semi-Gloss (PP-101/SG-101)	Print quality Resolution HxV(dpi) Print control Ink used		Draf 1200x1200 3 pass-bi 6 color			High 4800x2400 8 pass-bi 8 color
Matte Photo Paper (MP-101)	Print quality Resolution HxV(dpi) Print control Ink used			Standard 2400x1200 4 pass-bi 7 color		High 2400x2400 8 pass-bi 7 color
Glossy Photo Paper (GP-401)	Print quality Resolution HxV(dpi) Print control Ink used		Draf 2400x1200 4 pass-bi 6 color			High 4800x2400 8 pass-bi 8 color
Photo Paper Plus Double Sid (PP-101D)	Print quality Resolution HxV(dpi) Print control Ink used		Draf 2400x1200 4 pass-bi 6 color			High 4800x2400 8 pass-bi 8 color
Other Photo Paper	Print quality Resolution HxV(dpi) Print control Ink used			Standard 2400x1200 8 pass-bi 6 color		

(4)Duplex Printing

Printer Driver's Custom setting / Paper Type		Fast 5	<-- 4	 3	--> 2	Fine 1
Plain Paper	Print quality	Custom	Draf	Standard		High
	Resolution HxV(dpi)	600x1200	600x1200	2400x1200		2400x2400
	Print control	1 pass-bi	1 pass-bi	2 pass-bi/uni		8 pass-bi
	Ink used	4 color	4 color	4 color		4 color
Photo Paper Plus Double Sid	Print quality		Draf			High
(PP-101D)	Resolution HxV(dpi)		2400x1200			4800x2400
	Print control		4 pass-bi			8 pass-bi
	Ink used		6 color			8 color

(5)Camera Direct Printing

Printer Driver's Custom setting / Paper Type		Fast 5	<-- 4	 3	--> 2	Fine 1
Photo Paper Pro	Print quality					High
(PR-101)	Resolution HxV(dpi)					4800x2400
	Print control					8 pass-bi
	Ink used					8 color
Photo Paper Plus Glossy	Print quality					High
Photo Paper Plus Semi-Gloss	Resolution HxV(dpi)					4800x2400
(PP-101/SG-101)	Print control					8 pass-bi
	Ink used					8 color

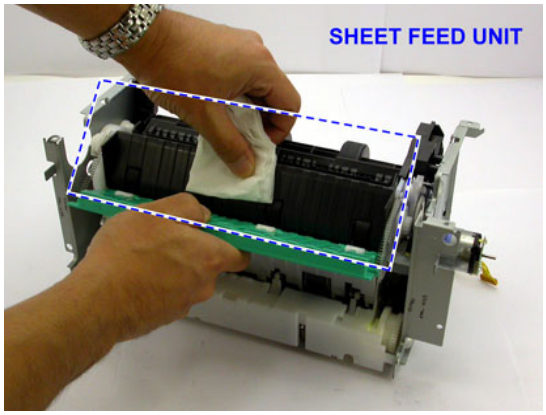
4. FAQ (Problems Specific to the iP8500 and Corrective Actions)

No.	*	Function	Phenomenon	Condition	Cause	Corrective action	Possible call or complaint
1	C	Print results	Margin (approx. 0.3mm)	- Paper feeding from the cassette, Photo Paper Plus Double Sided (A4), borderless printing, printing on the back side of paper - In the low temperature and low humidity environment		- In the printer driver, increase the amount of extension. - Change the paper feeding method from the cassette to the auto sheet feeder.	- A margin appears on printouts. - Paper feeds at an angle.
2	B	Print results	- Skewed paper feeding - Printing on the platen	- Plain paper - In the high temperature and high humidity environment		- If paper is curled, straighten it. - Try printing on the other side of paper.	- Paper feeds at an angle. - Printing is performed on the platen. - The back side of paper gets smeared.
3	B	Print results	Variation in the top of form accuracy	- A5 or legal size - In the low temperature and low humidity environment - Not solved even when the number of sheets stacked in the auto sheet feeder or the cassette is reduced	Due to decrease of paper feed capability in the low temperature and low humidity environment	- Set the top margin to 4mm or more.	- Print start position varies.
4	B	Print results	- Skewed paper feeding - Margin	- Photo Paper Plus Double Sided - 2L size (Japan only)		- In the printer driver, increase the amount of extension. - Change the paper feeding method from the cassette to the auto sheet feeder.	- A margin appears on printouts. - Paper feeds at an angle.
5	A	Print results	Soiling on the back side of paper (lines or streaks parallel to the paper feed direction)	- After continuous borderless printing of small sized paper (such as 4 x 6), when a larger sized paper (such as A4) is printed. - With Photo Paper Plus Double Sided or postcards, the phenomenon is likely to be noticeable and to be complained of by users, as printing is performed on both sides of such paper.	In borderless printing, printing is performed to the size slightly larger than the paper size, and ink off the paper is absorbed by the platen's ink absorber. Absorbed ink may attach to the platen rib(s) after several dozen sheets are printed, causing soiling at the leading edge of paper or on the back side of paper.	1. Perform Bottom plate cleaning (from the printer driver) up to 3 times[*1]. 2. If soiling on the paper still remains after 3 times of Bottom plate cleaning, wipe the platen rib(s) and their surroundings with a cotton swab.	- Paper gets smeared. - The back side of paper gets smeared.
6	B	Print results	Soiling on paper in automatic duplex printing (lines or streaks perpendicular to the paper feed direction)	- Automatic duplex printing (Photo Paper Plus Double Sided, postcards, plain paper)	On the rib(s) inside the sheet feed unit used for duplex printing, ink mist may accumulate, smearing paper.	**Temporary operational solution:** Cancel automatic duplex printing, and manually print each side of paper. **Cleaning by user:** 1. Perform Bottom plate cleaning (from the printer driver) up to 3 times[*1]. 2. If soiling on the paper still remains after 3 times of Bottom plate cleaning, wipe the platen rib(s) and their surroundings with a cotton swab. If the phenomenon persists after conducting 1 and 2, servicing is required. **Service:** Wipe any soiling or dirt off from the sheet feed unit and the bottom case unit ribs[*2].	- Paper gets smeared. - The back side of paper gets smeared. - Even after Bottom plate cleaning was performed, and the platen ribs were cleaned with cotton swab, paper gets smeared.
7	C	Print results	Scratches on paper	- PP-101D, PP-101, PR-101, SG-101, etc. - Paper feeding from the cassette - Multiple number of sheets loaded	Scratches on the PF return lever due to paper feeding from the cassette, and duplex printing path.	- Change the paper feeding method from the cassette to the auto sheet feeder. - If automatic duplex printing is performed, cancel it, and, by setting only a single sheet of paper in the auto sheet feeder, manually print	- Paper is scratched. - Marks appear on printed paper.

						each side of paper.	
8	C	Print results	Streaks or uneven printing at the leading edge (from top to approx. 3mm down) or at the trailing edge (from the bottom up to approx. 18mm) on specialty paper in grayscale printing	Only when all the following conditions are met: - Specialty paper (PR, SP, SG, MP GP, etc.) - Grayscale printing - Paper is curled.	- If paper is curled, the leading or trailing edge contacts the ink absorber, preventing the dot placement accuracy, resulting in uneven printing or streaks. - Uneven printing at the trailing edge.	- Cancel grayscale printing, and print in colors. - To print color image in gray, change the image color in gray using the application, then print it in colors. - Straighten the paper.	- Lines or uneven printing at the top or bottom of paper
9	C	Print results	Uneven printing at the trailing edge (from the bottom end to approx. 20mm up)	Only when both the following conditions are met: - Photo Paper Plus Double Sided (PP-101D) - Printing in dark flat color	Incorrect bidirectional positioning of the print head. (Inaccuracy in ink droplet placement at the trailing edge)	Perform print head alignment. - Perform automatic print head alignment. - If the problem is not solved by automatic print head alignment, perform manual print head alignment.	Color hue differs (or printing is uneven) in the bottom area.

*1: Change the paper in each Bottom plate cleaning. The cleaning can end when paper does not get any soiling.

*2: Locations to clean in servicing when soiling on paper in automatic duplex printing persists:



* Occurrence level:

A: The symptom is likely to occur frequently. (Caution required)

B: The symptom may occur under certain conditions, but likeliness is assumed very low in practical usage.

C: The symptom is unlikely to be recognized by the user, and no practical issues are assumed.

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